

**DOCKETED****12-EPIC-01****TN 72778****MAR 13 2014****(This is a Request for Information only - Complete Pages 1 and 2 for each initiative)****Title of Proposed Initiative** (Short and concise):**CalCEF Program: California Climate Solutions Accelerator****Investment Areas** (Check one or more) – *For definitions, see First Triennial Investment Plan, page 12:*

- ☐ Applied Research and Development
- ☐ Technology Demonstration and Deployment
- ☒ Market Facilitation

Electricity System Value Chain (Check only one): See CPUC Decision 12-05-037, Ordering Paragraph 12.a. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

- ☐ Grid operations/market design
- ☐ Generation
- ☐ Transmission
- ☐ Distribution
- ☐ Demand-side management

Issues and Barriers:

Describe the issues and barriers that are impeding full market adoption of the proposed clean energy technology or strategy (such as cost, integration, or lack of information).

Initiative Description and Purpose:

How will this technology or strategy help address the issue/issues? Describe knowledge to be advanced to overcome critical barriers. Include the recommended funding level (minimum and maximum) for each project under this initiative.

Stakeholders:

Identify the stakeholders who support the initiative.

Background and the State-of-the-Art:

- What research development and demonstration has been done or is currently being done to advance this technology or strategy (cite past research as applicable)?
- Describe any public and/or private successes and failures the technology or strategy has encountered in its path through the energy innovation pipeline: lab-scale testing, pilot-scale testing, pre-commercial demonstration, commercial scale deployment, market research, workforce development.
- Identify other related programs and initiatives that deal with the proposed technology or strategy, such as state and federal programs or funding initiatives (DOE, ARPA-E, etc.).

EPIC TRIENNIAL INVESTMENT PLAN 2015-17
Proposed Energy Research Initiative
Questionnaire



Justification:

Describe how this technology or strategy will provide California IOU electric ratepayer benefits and provide any estimates of quantified annual savings/benefits in California, including:

- Name of sector and estimated size and energy use.
- Quantifiable performance improvements for the proposed technology/strategy.
- Maximum market potential, if successful.
- Number of direct jobs created in California.
- Why this research is appropriate for public funding.

Ratepayer Benefits (Check one or more):

- ☐ Promote greater reliability
- ☐ Potential energy and cost savings
- ☐ Increased safety
- ☐ Societal benefits
- ☐ Environmental benefits - specify
- ☐ GHG emissions mitigation/adaptation in the electricity sector at the lowest possible cost
- ☐ Low emission vehicles/transportation
- ☐ Waste reduction
- ☐ Economic development

Describe specific benefits (qualitative and quantitative) of the proposed initiative

Public Utilities Code Sections 740.1 and 8360:

Please describe how this technology or strategy addresses the principles articulated in California Public Utilities Code Sections 740.1 and 8360. The California Public Utilities Code is available online at www.leginfo.ca.gov/cgi-bin/calawquery?codesection=puc.



Responsive to February 2014 Workshop Question #4:

“What technologies or strategies, such as zero-net buildings, could potentially benefit from innovative business models or financing mechanisms the way rooftop PV has benefited from third-party leasing?”

And Question #5:

“To what extent do existing clean energy business incubators, business plan competitions, and innovation clusters support companies in scaling up to commercial production?”

The California Clean Energy Fund (CalCEF) proposes a new statewide service – the California Climate Solutions Accelerator (CSA) - that will coordinate and accelerate the deployment of critical technology upgrades into California businesses facing emissions constraints under the AB32 regime.

The central concept that this service seeks to operationalize is the following: the process of constraining GHG emissions California has created new technology challenges for affected California entities. While this policy-created emissions constraint is an essential component of the state’s climate strategy, it creates a new economic burden for capped entities in a difficult economic climate. Additionally, there is a clear imperative to deploy clean energy technology solutions in under-served and economically disadvantaged communities across the state, to achieve both GHG and critical co-pollutant reductions. The Solutions Accelerator would treat these two types of California entities as its core customers.

The CSA exists to evaluate these new technological challenges at the level of the individual affected firm or community; identify the optimal technology solutions to those challenges; provide affordable financing solutions for the deployment of those solutions, utilizing private funds to the fullest possible extent, backstopped by low-cost capital derived from carbon auction proceeds where feasible; and coordinating the procurement of those solutions on behalf of California entities, individually or collectively, to the extent required.

CalCEF has the core competencies and operational experience required to build and run the CSA. Structured as a public benefit corporation with an “evergreen” investment mission, we have helped launch six investment vehicles covering the spectrum from early-stage venture capital to proven, infrastructure-scale technologies in the clean energy arena. We have a strong network of entrepreneurs, technologists and policy experts that can help leverage this investment expertise in identifying the right technology solutions to the challenges emerging in California industry. Crucially, we have been very active in the arenas of financial innovation that reduce or eliminate up-front capital requirements in the deployment of supply-and demand-side clean energy solutions, such as PPAs, leasing, and PACE models.

Finally, we approach the challenge of advancing climate solutions in a pragmatic, non-ideological fashion that, we believe, will resonate with the target customers for this service offering. Climate-motivated technological innovation can be a source of strength for California’s economic future. And these technologies, smartly deployed, can create important new allies in the struggle to address climate change.

I. Why a Climate Solutions Accelerator is Needed

The state of California has succeeded in structuring its emissions control regime to be flexible and market-oriented while still ensuring environmental performance. The cap-and-trade component of AB32 typifies this balance, sending an economic signal that is meaningful but manageable as the program initiates operation.

The principal threat to cap and trade, and to AB32 in its entirety, is that California's program remains isolated, not joined by GHG-constraining policies in either state or national contexts, and California industry becomes threatened by competition from these lower-cost markets.

In order, therefore, for AB32 to not only be sustained in California but to be exported to other states and to the national level, its broad set of mandates and market mechanisms needs to be *paired with an effective technology deployment function*. This strategy can both minimize the new economic burdens imposed by a GHG cap, and create new competitive advantages for California's economy through the deployment of cost-saving, efficiency-enhancing technologies.

II. Operationalizing the CSA Model

CalCEF has identified a technology accelerator model that is highly differentiated from accelerators currently in operation. In the traditional example, an accelerator targets a technology category or group of categories, announces its intentions to provide services, and opens its doors to a broad range of ideas. We refer to this approach as "supply-push," in that the efforts of the accelerator are largely driven by innovations that happen to enter its frame of reference. In the CalCEF CSA approach, we aim to pursue a "demand-pull" model, defined as follows:

- Working with a base of industry customers facing a technology need that is motivated by AB32 compliance, we characterize those challenges in a manner that is actionable to the clean technology community;
- Using our state and national network of innovation partners, we work with our industrial customers to find the optimal technical solution specific to their business practices. This vetting process will utilize our venture capital networks and our relationships with the public and private centers of clean energy innovation, as well as context models such as X Prize and the CleanTech Open;
- We find the private financing solution that is best suited to the deployment of the technologies selected, such as the PPA model, ideally leveraged with strategically applied public funds, such as revolving loans or loan guarantees, that will be regularly redeployed into the program;
- Once the technology and financing solutions are identified, we work with our industry customers to manage the procurement and deployment of those technologies, to the extent such assistance is necessary.

The Climate Solutions Accelerator is therefore distinct in its focus on specific technology needs, which constitute a near-term addressable market for clean tech entrepreneurs and financiers, and its emphasis on placing "accelerated" technologies and ventures in a context of problem-solving and rapid scaling.

Over time, the structure is also scalable to different regional contexts, using the framework of demand-driven acceleration and multiple institutional relationships, tailored to the needs of local clients and the types of innovation evident in or desired by the region. The CSA becomes part of the "exportable learnings" of the AB32 implementation process, helping to secure the policy's place in the state and national contexts.